

## SEQUENCE LISTING

<110> Francis, Kevin Purchio, Anthony F. <120> COMPOSITIONS AND METHODS FOR USE THEREOF IN MODIFYING THE GENOMES OF MICROORGANISMS <130> PXE-013.USP / 9400-0013 <140> 09/888,049 <141> 2001-06-21 <150> 60/216,257 <151> 2000-07-06 <150> 60/274,105 <151> 2001-03-07 <160> 20 <170> PatentIn Ver. 2.0 <210> 1 <211> 6 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Gram-positive ribosome binding site <400> 1 aggagg <210> 2 <211> 41 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Primer XAF

<400> 2

ccccggatcc tgcagatgaa gcaagaggag gactctctat g

<210> 3

<211> 36

<212> DNA <213> Artificial Sequence

-220-

<223> Description of Artificial Sequence: Primer XAR

<400> 3

ggcggatccg tcgacttaat ataatagcga acgttg

41

6

	<210> 4	
	<211> 39	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer XBF	
	<400> 4	20
	gggaattete gaggaggaga gaaagaaatg aaatttgga	39
	<210> 5	
	<211> 37	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer XBR	
	<400> 5	27
	ggcggatccg tcgacttagg tatattccat gtggtac	37
	<210> 6	
	<211> 34	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer XCF	
	<400> 6	34
	gggaattete gaggaggatg gcaaatatga etaa	34
•	<210> 7	
	<211> 37	
	<212> DNA	
•	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer XCR	
	400 B	
	<400> 7	37
	ggcggatccg tcgacttatg ggacaaatac aaggaac	3,
	<210 > 8	
	<211> 37 <212> DNA	
	<212> DNA <213> Artificial Sequence	
	(213) Altititat bequence	
	<220>	
	<pre>&lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer XDF</pre>	
	22233 Description of Artificial bequence, firmer ass	
	<400> 8	
	9ggaattete gaggaggagt aaaagtatgg aaaatga	37
	gggaarroco gaggaggagr aaaagracgg aaaarga	

,		
•		
•		
	·	
	011. 27	
•	<211> 37 <212> DNA	
	<213> Artificial Sequence	
	•	
	<220>	
	<223> Description of Artificial Sequence: Primer XDR	
	<400> 9	
	ggcggatccg tcgacttaag acagagaaat tgcttga	37
	<210> 10	
	<211> 38	
	<212> DNA <213> Artificial Sequence	
	2213) Altiticiai bequeñec	
	<220>	
	<223> Description of Artificial Sequence: Primer XEF	
	400. 10	
	<400> 10 gggaattete gaggaggaaa acaggtatga etteatag	38
	gggaaccccc gaggaggaaa acaggeacga coconong	
•	<210> 11	
	<211> 38	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer XER	
	400 44	
	<400> 11 ggcggatccg tcgacttaac tatcaaacgc ttcggtta	38
	ggoggaccog cogaccoaao caocaaacgo cooggacc	
	<210> 12	
•	<211> 32	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer KanF2	
	<400> 12 ctgtagactc gaggagggaa ataataaatg gc	32
	ctgtagacte gaggagggaa acaacaaacg go	
	<210> 13	
	<211> 26	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: Primer KanR2	
	400 10	
	<400> 13 cagagtgtcg acagttgcgg atgtac	26
	cayaycyccy acayccycyy acycac	
	<210> 14	
٠	<211> 19	

C212> DNA			
<pre>&lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer     MCC-CAT-F1  &lt;400&gt; 14     ggtgtccctg ttgataccg</pre>	•		
<pre>&lt;213&gt; Artificial Sequence  &lt;220&gt;</pre>			
<pre> &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer</pre>	•		
<pre> &lt;223&gt; Description of Artificial Sequence: Primer     MGC-CAT-F1  &lt;400&gt; 14     gqtgtccctg ttgataccg</pre>		<213> Artificial Sequence	
### Add		<220>	
19			
<pre> &lt;210&gt; 15 &lt;211&gt; 20 &lt;212&gt; DNA &lt;2123&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer</pre>			19
<pre> &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer</pre>		ggtgtccctg ttgataccg	
<pre>&lt;212&gt; DNA &lt;213&gt; Artificial Sequence &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer     LuxA-Rev  &lt;400&gt; 15     ccacactcct cagagatgcg</pre>			
<pre>&lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LUXA-Rev  &lt;400&gt; 15     ccacactcct cagagatgcg</pre>			
<pre>&lt;223&gt; Description of Artificial Sequence: Primer LuxA-Rev  &lt;400&gt; 15 ccacactcct cagagatgcg</pre>		<213> Artificial Sequence	
LuxA-Rev  <400> 15 ccaccactcct cagagatgcg  <210> 16 <211> 21 <212> DNA <213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer LuxIF3  <400> 16 gcttggtaac ccttatgtcg c  <210> 17 <211> 19 <211> 19 <212> DNA  ·213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer LuxR3  <400> 17 ggaaggttgg tatgtaagc  <210> 19 <210> 18 <211> 22 <212> DNA  <211> 20 <221> DNA  <213> Artificial Sequence  <220> <221> C21  <210> 18 <211> 22 <212> DNA <213> Artificial Sequence  <220> <221> DNA <213> Artificial Sequence  <220> <221> DNA <213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer R2  <400> 18 cgtttcatta cctctgtttg ag  22		<220>	
<pre>ccacactcct cagagatgcg  &lt;210</pre>			
<pre>ccacactcct cagagatgcg  &lt;210</pre>		<400> 15	
<pre>&lt;211&gt; 21 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence </pre> <pre>&lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LuxIF3 </pre> <pre>&lt;400&gt; 16 gcttggtaac ccttatgtcg c</pre>	۸	ccacactcct cagagatgcg	20
<pre>&lt;212&gt; DNA &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LuxIF3  &lt;400&gt; 16     gettggtaac cettatgteg c</pre>			
<pre>&lt;213&gt; Artificial Sequence  &lt;220&gt;</pre>			
<pre>&lt;223&gt; Description of Artificial Sequence: Primer LuxIF3  &lt;400&gt; 16 gcttggtaac ccttatgtcg c 21  &lt;210&gt; 17 &lt;211&gt; 19 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LuxR3  &lt;400&gt; 17 gggaggttgg tatgtaagc 19  &lt;210&gt; 18 &lt;211&gt; 22 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence &lt;220&gt; &lt;220&gt; &lt;221&gt; DNA &lt;213&gt; Artificial Sequence</pre> <pre>&lt;220&gt; &lt;221&gt; DNA &lt;213&gt; Artificial Sequence</pre> <pre>&lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer R2  &lt;400&gt; 18 cgtttcatta cctctgtttg ag 22</pre>			
<pre>&lt;400&gt; 16 gcttggtaac ccttatgtcg c 21  &lt;210&gt; 17 &lt;211&gt; 19 &lt;212&gt; DNA</pre>		<220>	
gcttggtaac ccttatgtcg c 21 <pre> &lt;210&gt; 17 &lt;211&gt; 19 &lt;212&gt; DNA  <pre> &lt;2213&gt; Artificial Sequence </pre> <pre> &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LuxR3  </pre> <pre> &lt;400&gt; 17 gggaggttgg tatgtaagc 19  &lt;210&gt; 18 &lt;211&gt; 22 &lt;212&gt; DNA &lt;211&gt; 22 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence </pre> <pre> &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer R2 </pre> <pre> &lt;400&gt; 18 cgtttcatta cctctgtttg ag 22</pre></pre>		<223> Description of Artificial Sequence: Primer LuxIF3	
<pre>cttggtaac cettatgteg c  &lt;210&gt; 17 &lt;211&gt; 19 &lt;212&gt; DNA  &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LuxR3  &lt;400&gt; 17 gggaggttgg tatgtaagc  19  &lt;210&gt; 18 &lt;211&gt; 22 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer R2  &lt;400&gt; 18 &lt;213&gt; Artificial Sequence &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer R2  &lt;400&gt; 18 cgtttcatta cctctgtttg ag</pre> 22			21
<pre>&lt;211&gt; 19 &lt;212&gt; DNA</pre>		gcttggtaac ccttatgtcg c	21
<pre> &lt;212&gt; DNA</pre>		<210> 17	
<pre> ' &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer LuxR3  &lt;400&gt; 17     gggaggttgg tatgtaagc</pre>			
<pre>&lt;223&gt; Description of Artificial Sequence: Primer LuxR3  &lt;400&gt; 17   gggaggttgg tatgtaagc</pre>			
<pre>&lt;400&gt; 17 gggaggttgg tatgtaagc  &lt;210&gt; 18 &lt;211&gt; 22 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer R2  &lt;400&gt; 18 cgtttcatta cctctgtttg ag</pre> 22		<220>	
gggaggttgg tatgtaagc  <210> 18 <211> 22 <212> DNA <213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer R2  <400> 18 cgtttcatta cctctgtttg ag		<223> Description of Artificial Sequence: Primer LuxR3	
<pre> &lt;210&gt; 18 &lt;211&gt; 22 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence  &lt;220&gt; &lt;223&gt; Description of Artificial Sequence: Primer R2  &lt;400&gt; 18 cgtttcatta cctctgtttg ag  22</pre>			1 9
<211> 22 <212> DNA <213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer R2  <400> 18 cgtttcatta cctctgtttg ag		gggaggttgg tatgtaagc	10
<212> DNA <213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer R2  <400> 18 cgtttcatta cctctgtttg ag			
<213> Artificial Sequence  <220> <223> Description of Artificial Sequence: Primer R2  <400> 18 cgtttcatta cctctgtttg ag			
<223> Description of Artificial Sequence: Primer R2  <400> 18 cgtttcatta cctctgtttg ag			
<400> 18 cgtttcatta cctctgtttg ag		<220>	
cgtttcatta cctctgtttg ag		<223> Description of Artificial Sequence: Primer R2	
			22
		<210> 19	

```
<211> 17
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Primer M13F
<400> 19
                                                                   17
gtaaaacgac ggccagt
<210> 20
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: CSP1
<400> 20
Glu Met Arg Leu Ser Lys Phe Phe Arg Asp Phe Ile Leu Gln Arg Lys
                                                          15
                                      10
```

Lys